4:Grajdanzev--106-107 S-4 (no date) 1942 Formosans
116, 316, 433, 454, 177.31 Japan
636.31

"Mining occupies a relatively unimportant position in Taiwan. In 1936, the last year for which data are available, the gross value of mineral products was Y28,727,000, less than ten per cent of the value of industrial production and less than one per cent of total production. But as regards the capital invested, the attention given by the government to oil and, recently, to gold, and the subsidies lavished on actual and potential producers of oil, it occupies quite a prominent position. The caiptal of the mining industry at the end of 1937 was Y46,635,000 (1). There were twenty-four companies, [107] but, just

1. It is not clear whether this is subscribed or paid-up capital, or whether this sum includes reserves and other investments.

as in other fields, three companies dominated the field; Taiyo Kogyo, Taiwan Kogyo, and Keelung Tanko (coal), (2) each having capital of over Y5,000,000.

2. The paid-up capital of this corporation is Y7 million and out of 140,000 shares 43,473 are in the hands of Mitsui Kosan and 41,656 in the hands of Mitsui Bussan."

4:Grajdanzev--107-108 S-4 (no date) 1942 Formosans-1-2
116, 316, 433

"The relative importance of mining products produced in 1936 may be seen in the following table:

Metals or minerals	Value of output (1,000 yen)	Per cent of total	Volume
Gold	4,224	14.7	
Gold-silver-copper ores	5,881	20.5	
Placer gold	160	0.6	
Gold ores	2,078	7.2	
Total gold and gold ores	12,343	43.0	41,608 oz. (1936) 50,000 (1937)*
Silver	17	0.1	
Copper	470	1.6	2,299 tons (1934) 4,000 (1936)*
Coal	11,365	39.6	1,744,000 (1937)
Sulphur	87	0.3	1,071 tons (1935)
Phosphorites	1	—	
Petroleum	312	1.1	1,780 thous. gall. (1935)

* Approximate figures

Metals or minerals	Value of output (1,000 yen)	Per cent of total	Volume
Natural gasoline	456	1.6	1,480 thous. gall. (1935)
Carbon black	292	1.0	1,237 tons (1935)
Others	3,384	11.7	
Total	28,727	100.0	

As shown in this table, gold and coal make up about eighty-three per cent of the total value, and are thus of paramount importance. No explanation is available of the group 'others', [108] representing 11.7 per cent of the total. In 1935 this group made up only about four per cent and the sudden leap to 11.7 per cent is difficult to explain."

4:Grajdanzev--108 S-4 (no date) 1942 Formosans
116, 135, 316

"Gold mining was carried on in Taiwan before the Japanese occupation, but gradually, as the best areas were worked out, the amount of gold produced declined and remained low up to 1931, when the depreciation of the yen and the consequent rise in the price of gold made mining more profitable. At the same time the introduction of machinery in modern enterprises decreased costs and, as a result, in five years (1931-36) the value of gold produced was tripled. Since 1936 no data have been published, though the discovery of new ore deposits was mentioned in the newspapers (1). Placer gold is mined in

1. In the February 1940, issue, of Keizai Chishiki it is reported that in October 1939, in the eastern part of the island in the valley of the Takkiri (Keikoku), placer gold was discovered by a mining engineer. This placer deposit was estimated to contain one billion yen worth of gold. However, as early as 1907 Yokobori estimated the value of gold in placers and ores in Taiwan at four billion yen.

Taihoku and Karenko provinces, while ores containing gold in conjunction with silver and copper are found only in Taihoku province."

"Actual production of coal reached its maximum in 1927, when 1,850,000 tons were produced. After that a decline set in, the lowest point occurring in 1932 (1,355,000 tons). With the general revival, production rose to 1,550,000 tons in 1935 and in 1937 to 1,744,000 tons. However, the low development of industry and the poverty of the population combine to [109] make the marketing problem difficult. Production capacity is considerably larger than actual production, and as may be seen from the following table, the market for coal is chiefly outside Taiwan.

Consumers of Taiwan's Coal 1932-34

	Quantity (1,000 tons)	% of total
Industry	399.7	27.6
Railways	150.5	10.4
Homes	48.8	3.4
Shipping	498.8	34.4
Exports	330.0	22.8
Other	21.3	1.4
Total	1,449.1	100.0

Source: Taiwan ginko chosa kacho, quoted by K. Takahashi.

Thus only slightly more than forty per cent of the output is consumed in the island

itself. Taiwan is capable of producing more coal than it does now, but the limiting factor is the smallness of the domestic market."

Petroleum is obtained in various spots, but is inferior. According to old Dutch chroniclers, gold was formerly mined in the northeast; it is also said that, in the trenches dug to receive it, quantities of gold were obtained at the foot of the hills in this region, when the August rains had swelled the rivers. The river of Su-aô actually carries down from the mountains particles of gold in the sand. Other regions of the island have also proved to contain gold recently. Thus, in the southern part of the country, near Liang-tschian (within the territory still left to the natives), a landslide caused by heavy rains is said to have revealed a considerable quantity of gold. Most surprising was the discovery of goldbearing river sand while building a railroad bridge over a tributary of the upper Ki-lung, in 1890. At once thousands of Chinese hastened thither who had learnt goldwashing in California or Australia; and in the course of the last years the stones carried down by the Ki-lung have been most industriously exploited by these goldwashers, and it would appear with considerable success. But in the fixed rock no gold has been discovered there (Hosie, pp. 23 ff.).

But much greater profit is promised by the extraction of coal, which is met with far and wide in extensive beds, both in north and south (Hosie, p. 21). Up till now the only extraction of importance has taken place in the beds that can be traced along the north-east coast, on the right side of the Ki-lung River, through the Ki-lung Mountains as far as the mountain spurs of Pi-taô. The coal mines there lie close to the coast near

the port of Ki-lung, and provide, in part, a very good anthracite; formerly the coal was extracted only in Chinese fashion in galleries that sank diagonally, but since 1875 machines have been used.

7: Joest--55 [12] E-5 (no date) 1882 Formosans
116, 316

Formosa has abundant deposits of bituminous coal, sulphur, and oil. The Chinese, however, have hardly exploited these at all.

42: Schetelig--393 T-2 (no date) 1868 Formosans
116, 135, 316

Coal is found everywhere in narrow beds that are almost always horizontal and lie between graywack and clay schist. It is not of the first quality and is of light specific gravity, but when mixed with English or Australian coal it provides a fairly satisfactory fuel. Of the galleries I visited, some were 600 paces long before one reached dimensions of 6 to 7 feet vertically and 20 to 40 feet horizontally. Statements have also been made about precious metals that are said to occur in Formosa. I myself have seen nothing of the kind, but before all else I wish to stress the fact that the value of precious metals does not depend on their inherent worth alone, but on the location and the surroundings.

45:Stanford U. S-4, 5 1956 AD I Formosa
AD-1 AD1

II. MINERAL RESOURCES [16]

135 Although many of the mountainous areas in Formosa have not been fully explored, the island does not appear to be rich in mineral resources nor are those that are known available in quantity. Formosa does produce coal, some 328 316 gold, copper, petroleum, salt pyrite, and 317 sulphur. Some coal and salt is exported. All of the other minerals are for domestic consumption. Smaller quantities of mercury, manganese, asbestos, mica, and gypsum are also produced. Bauxite, necessary for the aluminum industry, and gypsum, used in cement production, are imported, since they are not found in sufficient quantities on the island. 316 The production of the various mining industries 433 in 1953 and 1954 is given below.

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16. Statistical information in this section, unless otherwise specified, is in large part from Taiwan Economic Data Book, Vol. 3, Taipei, 1955, by Foreign Operations Administration, MIssion to China.

438
316
328

PRODUCTION OF MINING INDUSTRIES 1953-54 */

	1953	1954
Coal (1,000 metric tons)	2,393	2,100
Crude petroleum (kiloliters)	2,830	5,571
Natural gas (1,000 cubic meters)	30,925	28,962
Sulphur (1,000 metric tons)	3	6
Pyrite (1,000 metric tons)	23	25
Gold (kilograms)	772	670
Silver (kilograms)	651	624
Copper (1,000 metric tons)	13	10
Salt (1,000 metric tons)	162	369
Gypsum (1,000 metric tons)	6	3
Mica (1,000 metric tons)	24	20

*/ China Annual 1954, Vol. 3, p. 48.

135 Estimated reserves of selected minerals are given in the following table. It would appear, from this brief survey, that Formosa possesses limited mineral resources and few of the mineral requirements of modern industry.

A. Coal

135 316 The coal mines of Formosa form a belt, roughly northeast-southwest, in the northwestern section of the island. Although relatively abundant, the coal is generally low-grade bitumen; only a limited quantity is suitable for cooking purposes. Annual production is about 2,000,000 metric tons; the estimated total reserve is 670,000,000 metric tons, most of which is located near Taipei Basin. More than 80 per cent of the coal produced is for domestic consumption. The remainder is exported.

B. Petroleum.

315 Crude oil production is limited, and supplying only about one per cent of the island's requirement. There are five refineries on the island; Kaohsiung Refinery is the largest. The other four refineries are small in scale, located near oil fields in Miaoli, Chuhuangkeng, Chinshui, and Chutung. Kaohsiung Refinery, equipped with three crude distillation units, one thermal cracking and reforming unit, and one vacuum distillation unit, as well as auxiliary plants, is capable of processing 25,000 barrels of crude oil a day. The principal products are motor gasoline, jet fuel, kerosene, diesel fuel, heavy fuel oil, and asphalt. Geology experts generally agree that Formosa has ample oil reserves for domestic needs. Further exploration and the drilling of additional wells will contribute to increased production.

52:Barclay S-5 (nodate)1954 ADl Formosa ADl

TABLE 7

GROSS RECORDED VALUE OF ALL PRINCIPAL TYPES OF PRODUCTION, 1915-1942

(Yearly Average for Each Period)

Years	Total	Agriculture	Mining	Fishing and Forestry	Industry
A. Millions of Yen:					
1915-19	262.7	144.5	7.2	9.1	101.9
1920-24	411.5	207.0	12.0	23.0	169.5
1925-29	559.0	293.6	16.8	31.8	216.8
1930-34	525.5	255.8	15.5	26.5	227.7
1935-39	901.0	432.9	39.6	41.5	387.0
1940-42	1388.4	576.4	62.8	91.8	657.4
B. Percentages of Total:					
1915-19	100.0	55.0	2.8	3.4	38.8
1920-24	100.0	50.3	2.9	5.6	41.2
1925-29	100.0	52.5	3.0	5.7	38.8
1930-34	100.0	48.7	3.0	5.0	43.3
1935-39	100.0	48.0	4.4	4.6	43.0
1940-42	100.0	41.5	4.5	6.6	47.4

Source: *Statistical Summary*, Tables 225-229.

TABLE 8

GROSS VALUE OF PRODUCTION RECORDED FOR "INDUSTRY" IN TAIWAN, BY LINE OF PRODUCT, 1921-1942

(Yearly Average for Each Period)

Years	Total	Textiles	Metal Products	Machinery & Equip.	Misc.*	Chemical Products	Food Products
A. Millions of Yen:							
1921-24	165	3	3	4	20	13	122
1925-29	217	3	4	5	32	20	153
1930-34	228	3	6	5	29	18	167
1935-39	387	6	17	12	45	38	269
1940-42	664	11	46	30	91	80	406
B. Percentages of Total:							
1921-24	100.0	1.7	1.9	2.1	11.9	7.9	74.6
1925-29	100.0	1.5	2.0	2.2	14.7	9.3	70.3
1930-34	100.0	1.1	2.5	2.3	12.9	7.8	73.3
1935-39	100.0	1.5	4.5	3.1	11.6	9.9	69.4
1940-42	100.0	1.7	7.0	4.5	13.7	12.1	61.0

* Includes Printing, Wood Products, Ceramics, and Other.
Source: *Statistical Summary*, Table 269 and Table 270.